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The Plant Disease Reporter is issued as a service to plant pathologists throughout the United States. It contains reports, summaries, observations, and comments submitted voluntarily by qualified observers. These reports often are in the form of suggestions, queries, and opinions, frequently purely tentative, offered for consideration or discussion rather than as matters of established fact. In accepting and publishing this material the Division of Mycology and Disease Survey serves merely as an informational clearing house. It does not assume responsibility for the subject matter.

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ASTER YELLOWS ON VEGETABLE CROPS AND WEEDS IN THE WINTER GARDEN REGION OF TEXAS

S. S. Ivanoff and W. H. Ewart

Occurrence of the Disease from 1937 to 1944

The unprecedented severity of Aster Yellows in 1943-1944 on various vegetable crops in the Winter Garden[1] seems to have been the result of a gradual build-up during the previous 6 seasons. The incidence of this disease on carrots (and in some instances on lettuce) may be followed from the following table:

Table 1. Incidence of Aster Yellows on carrots and lettuce in the Texas Winter Garden from 1937 to 1944.

Growing season September to May	Carrot infection Approximate average at harvest	Lettuce infection Approximate average at harvest	Number of vectors[a] per 100 sweeps (carrots)
1937-1938	Not noticed	---[b]	---
1938-1939	Trace	---[b]	---
1939-1940	Trace	---[b]	---
1940-1941	Trace	---[b]	---
1941-1942	Trace	3%[c]	2[d]
1942-1943	4%	3%	10-87
1943-1944	50%	25%	150-2970

[a] Macrosteles divisus (Uhl.)
[b] Small acreage of lettuce this season
[c] One field only, near Eagle Pass
[d] Collected from spinach field in March, 1942. None was taken from carrots at this time.

Aster Yellows on Carrots in 1943-1944

Carrots suffered the most from Yellows of any cultivated crop in the 1943-1944 season. The infection reached as high as 85% in certain commercial fields, and in one large garden it was more than 90%. Practically all diseased carrots were unsalable as bunched carrots. Carrots infected while still very young were a total loss since they were stunted and developed no appreciable root. Those infected later were small and usually were classified as culls at harvest because of the development of numerous tufts of rootlets on the main root. A few of the

[1] H. W. Larsh, PDR 28: 26-27, 51, 126, 134-135, 214-217; George E. Altstatt and G. M. Watkins, PDR 28:252. 1944 (Reports of Emergency Plant Disease Prevention Project surveys.

latter carrots were sold at a reduced price. Records taken on the incidence of the disease and on the corresponding loss to the crop at harvest time (end of November, 1943) at 2 different farms are shown in the following table.

Table 2. Aster Yellows infection and yield of Imperator carrots in 60-foot row

Farm	Total number carrots harvested	Percent Aster Yellows	Healthy percent				Diseased percent			
			Large	Small	Culls	Salable	Large	Small	Culls	Salable
1	307	61	25	43	32	68	0	1	99	1
2	279	58	25	39	36	64	6	8	86	14

The extent of infection on the different farms at any one time varied with the age of the crop and with the date of planting. The early carrots, planted in July and August, suffered the most. The infection gradually abated on the later-planted carrots, and those planted in January developed only about 5% infection near harvest. The amount of infection on the early crop was correlated with the great abundance of the insect vector.

The commonly known symptoms of Aster Yellows on carrots showed certain abnormalities at times. An enlargement of the core of diseased carrots, a symptom apparently not previously described, was observed. The yellowing of the youngest leaves and twisting of the petioles, the formation of an abnormal number of leaf shoots at the crown were not always associated with the formation of numerous root tufts at the lenticels of the root as had already been noted with the typical Aster Yellows by other observers. On the other hand, there were many carrot plants showing the root tufts without showing any leaf abnormalities. Also, some carrot plants previously had shown the leaf symptoms, but later (by May 15) the tops looked practically normal and were not recognizable as diseased. Judging solely by the appearance of the foliage the carrots seemed to have recovered from the disease. The mean maximum temperature during this recovery period was 90° F. After May 15 the heat had further increased, maximum temperature reaching beyond 100° F for 13 to 19 consecutive days at a time, with mean mean about 90°, and by the end of August the symptoms were still absent. It seems that the plants had been cured by the heat, perhaps permanently[2]. These observations suggest that the disease condition prevalent on the carrots during the season may be more complex than originally assumed.

Other Crops and Plants Affected by Aster Yellows

Next to carrots, lettuce suffered the greatest damage with infection varying from a few percent to nearly 40%. Most of the infected heads were not salable. The infection on lettuce, as on carrots, was general

[2] Kunkel, L. O. Heat cure of aster yellows in periwinkles. Amer. Journ. Bot. 28: 781-789. 1941.

throughout the region. The infection on spinach was erratic, as some fields showed only 1% while a few fields had from 15 to over 40%. This high infection in spinach seems to have far surpassed any previous records. Endive, parsley, parsnip, escarole, dill, and mustard were infected to a lesser degree than the carrots in the order named.

Among the weeds, wild lettuce (Lactuca scariola L.) seemed most frequently affected, partly perhaps because it is a winter weed and its growth coincided with the greatest prevalence of the insect vector. In the carrot fields and adjoining them this plant showed as much infection as the carrots. Other weeds had Aster Yellows in varying degrees more or less in the order named: Parthenium hysterophorus L., Aphanostephus humilis (Benth.) A. Gray, Sisymbrium irio L., Dyssodia wrightii (A. Gray) Robinson, Cirsium sp., Erigeron canadensis L., Gaillardia pulchella Foug., Spermolepis echinata (Nutt.) Heller, Verbesina encelioides (Cav.) Benth. & Hook., Pyrrhopappus multicaulis DC., Helenium latifolium Hill., and perhaps others. During the summer the only wild host seen infected with the disease was Erigeron canadensis, which may possibly serve as a source of inoculum for the new carrot crop. By early September no diseased individuals of this plant were seen, however.

The Vector

The Aster Yellows vector, Macrosteles divisus (Uhl.), was extremely abundant in carrot, lettuce, and spinach fields during the 1943-1944 season. Large numbers of adults were first noticed on October 5, 1943, in a field of carrots near Winter Haven. (Counts were not made at this time but it is estimated that if sweeping records had been made at least 150 adults might have been taken per 100 sweeps. Since the carrots were only 10 weeks old it is likely that the leafhoppers did not build up in the carrots but migrated into the field from surrounding vegetation.) The disease first alarmed the carrot growers in November and it was only after this time that extensive survey records were made. Sweeping records in carrots of market size only are summarized in the following table.

Table 3. Survey records on numbers of Macrosteles divisus and amount of Aster Yellows in carrot fields.

Month	Number of fields	Average number of leafhoppers in 100 sweeps		Average percent Yellows
November 1943	2	979 adults	8 nymphs	51.5
December 1943	11	1169 "	217 "	39.2
January 1944	14	468 "	38 "	41.3
February 1944	5	126 "	18 "	65.0
March 1944	1	600 "	32 "	36.0
April 1944	1	43 "	3 "	5.5
May 1944	2	4 "	0 "	4.5

In searching the records of the abundance of leafhoppers in previous years it was found that 100 sweeps in carrots in March, 1942, failed to take a single M. divisus, while in November, 1942, 87 adults were taken in 100 sweeps and in January, 1943, a like number of sweeps took only 10

adults. While these records are fragmentary there is some indication that the number of leafhoppers has progressively increased since the 1941-42 season.

While the leafhoppers were collected from many species of plants the greatest number were found in young oat fields in the winter of 1943-1944, where they are believed to breed and perhaps later migrate to surrounding areas. No other vector species known to transmit this disease have been found thus far in the Winter Garden. Interestingly enough, no specimens were collected during June, July, and August of 1944, but a few were taken in sweepings in weeds in early September, 1944, the time of writing this report.

Inoculation Tests

In order to study the symptoms on various plants, inoculations were made in the winter and early spring of 1944 in the greenhouse, by means of the insect vector H. divisus collected from an old carrot planting which showed more than 90% of the plants infected. Leafhoppers varying from a few to 30 in number were caged with young spinach, tomato, pepper, eggplant, and onion plants. Onions were included in these tests because an unknown onion disease, apparently of virus origin, had been observed in various commercial fields at the time Yellows was at its peak. At the same time Yellows vectors were found in these onion fields. From a few to 20 plants of each species were inoculated and at least an equal number were used as checks. The insects were kept for 5 days or longer with the plants and were observed to feed on the plants before the insects died or were destroyed, and the cages removed. All of the inoculated 12 spinach plants produced typical Aster Yellows symptoms 14 to 18 days after the insects were introduced, while none of the check plants showed any disease symptoms. The tomatoes, peppers, and eggplants did not show noticeable symptoms after several weeks' observation and were discarded. The inoculated onions were still apparently healthy after 5 months.

Varietal Susceptibility Test

A report was received of one commercial field of carrots, planted to more than one variety, in which Danvers Half Long had apparently suffered much less from Yellows than Imperator, which is grown on more than 90% of the commercial acreage in this area. An experiment was set up to ascertain whether any differences exist in the susceptibility of the common varieties of carrots. Certain varieties that are not grown locally were also included in the test. Altogether 24 carrot seed samples representing 15 varieties were tested. The carrots were planted on December 22, 1943, on a plot of ground bordered on 2 sides by nearly mature commercial carrot plantings, which had considerable Yellows infection and an abundance of insect vectors. Each lot of carrot seed was planted in 5 randomized replications (100 feet of row each). The infection on the experimental carrots did not develop as extensively and uniformly as expected. Records from sweeping showed that the leafhopper population was also low.

The final records taken on May 10, 1944, nearly 5 months after planting, are shown in the following table.

Table 4. Susceptibility to Aster Yellows of 15 carrot varieties

Carrot variety	Number of strains in trial	Percent of infection
1. Locally grown for shipping or trucking:		
Danvers Half Long	2	7.0
Imperator	5	6.1
Chantenay	3	4.1
2. Not widely grown but with possibilities for the area:		
Morse's Bunching	2	2.7
Short Top Shipper	2	2.3
3. Other varieties:		
White Belgian	1	9.7
St. Valery (or Long Orange)	1	8.4
Luc Half Long	1	6.6
Bagley	1	6.2
#122 (unkown variety)	1	5.9
Oxheart	1	5.6
French Forcing	1	5.1
Supreme Half Long	1	5.1
Yellow Belgian	1	5.1
Early Scarlet Horn	1	4.3

From the limited data available, there seems to be not much difference in susceptibility to Aster Yellows among the varieties tried. The results do not warrant any recommendations to growers at present to plant one variety in preference to another from a disease control standpoint. However, further testing will be desirable under more severe disease conditions to compare Imperator with Short Top Shipper and parcularly with Morse's Bunching, which seems to show some possibilities as a desirable variety for shipping.

Postscript: Aster Yellows and a Similar Undetermined Condition in the Current Crop

Since this report was written, typical Aster Yellows on carrots to the extent of less than 1% was found on October 3 in a field near Winter Haven planted at the end of July, and in the vicinity of San Antonio to the extent of 8%. This is the first instance of this disease on this season's crop. Infection must have taken place several weeks earlier.

Another disease condition, heretofore not definitely recognized, was found in the same field at Winter Haven, to the extent of at least 6%. This condition differs from Aster Yellows although in some cases it may be mistaken for it. The color of the young leaves is only slightly less green than that of healthy carrots. All leaves are mottled (not uniformly chlorotic as in Aster Yellows), slightly puckered, with twisted veins.

The older leaves are normal green, seem thickened, slightly rolled, with some lobes united. The entire form of such leaves seems characteristically misshapen. Some of the diseased plants have an abnormal number of leaves, giving them a bunchy appearance, but, unlike Aster Yellows, the leaves are green with the characteristics described above.

TEXAS AGRICULTURAL EXPERIMENT STATION, SUBSTATION NO. 19, WINTER HAVEN

POTATO DISEASES AND INJURIES IN MASSACHUSETTS

Robert C. Cassell

Thirty-one potato fields in Hampshire and Franklin Counties in the Connecticut River Valley were visited during the period September 25 to 30, at the time of digging. Cobblers and Chippewas are mostly dug, Katahdins and Sebagos are more than half dug, and digging of Green Mountains is just getting started. Yields, in general, are good. The early varieties are yielding around 300 bushels per acre and the later varieties considerably better. A few fields were yielding 400 to 425 bushels per acre.

Late Blight (Phytophthora infestans) tuber infection was found in 22 of 26 fields examined while the potatoes were being dug. Between July 25 and the second week of August, when the hot dry weather became intense in New England, Late Blight made considerable headway in the Connecticut River Valley fields. During the last 2 weeks of August, following the hot weather, it was practically impossible to find active Blight in the fields. However, during the first 2 weeks of September a secondary build-up of Blight occurred on tops still green, at a time when the growers were ceasing to spray. This secondary spread probably would not have been very important had it not been for the extremely heavy rains preceding and during the hurricane of September 14, which beat down the ridges and drenched the soil, carrying the spores of the fungus to more than average depths into contact with the tubers. This explains, at least in part, the general prevalence of Late Blight at digging time although it appeared at the last of August that Blight probably would be of no consequence in the Valley this year.

Late Blight as it is found at present is what the growers call "Hurricane Blight." Tuber infection has been relatively recent and it is difficult as yet to tell the extent of the damage. Very little tuber rot has had time to develop. However, it appears that losses will be relatively light in spite of the fact that Blight-infected tubers were found in 22 of 26 fields examined. In several fields only a trace of the tuber infection could be found. In most fields Blight could be found only in low areas; however, in such areas affected tubers often totaled 10 to 50%, and in one case about 90%. Probably the most serious case seen was a 25-acre field of Katahdins in which there appeared to be 2 to 3% infected tubers throughout the field.

Evidence of the late-season build-up of Blight could be verified this week by the amount of the sporulating fungus still existent on those green tops remaining in the late-planted fields. Five fields were found where there were still some green tops in the low areas. In all cases a large amount of the Late Blight fungus could be found in an active state.

Bacterial Ringrot (Corynebacterium sepedonicum) was found in 5 of 26 fields. In all cases where Ringrot was found the seed had been purchased

as certified seed. Three fields appeared to have only a trace of tuber rot, and 2 fields had a little more, probably less than 1%. Three of the 5 fields were traced to the same source of certified Katahdin seed.

Spindle Tuber (Virus) seems to be quite prevalent in the Valley this year, especially in the Green Mountains. It was present in 5 of 8 fields of Green Mountains examined. Only a trace could be identified in one field. In 3 fields between 15 and 25% was present, and in the 5th field the tubers were almost 100% affected.

Pink Rot (Phytophthora erythroseptica) was found in low areas of 2 fields. About 1/2 acre was lost in one field; about 1/4 acre in the other.

Blackleg (Erwinia atroseptica) [E. phytophthora] tuber rot was found in slight amounts in 5 fields.

Scab (Actinomyces scabies) was present in amounts ranging from a trace to 5% and 10% in several fields, especially in the Hadley-Sunderland area. In all cases the Scab was of the deep-crater type, infested with insects that had aggravated and enlarged the lesions to such an extent as to make the affected tubers worthless except as culls.

Rhizoctonia (R. solani) was found in 14 of 17 fields where examination was made especially for "rhizoc". Prevalence ranged from a trace to 100%. Only a trace was present in 5 fields but the average prevalence for the 14 affected fields was about 30%. In most cases severity was light to moderate, but in 2 fields where prevalence was 80 to 100% severity was heavy.

Some wireworm and grub injury was seen but not enough to be considered serious.

EMERGENCY PLANT DISEASE PREVENTION PROJECT

POTATO DISEASES IN WISCONSIN

Edwin E. Honey, R. E. Vaughan, and J. W. Brann

During the week of September 18 to 23 inspections were made in potato fields in Adams, Portage, and Waupaca Counties. Potato harvesting had been completed or was under way at this time. Early potatoes had been dug and mid-season varieties were being dug. A frost on September 7 had killed the tops in many scattered locations, especially on muck soil in marshes. Abundant fall rains had stimulated the remaining vines to new growth and in many fields blossoms were again abundant.

A trace of Late Blight occurred on tubers of Chippewa being dug in muck soil in Adams County; also a trace to moderate infection on the foliage of green or maturing Chippewas in Portage and Waupaca Counties. From a trace to severe infection was noted on tops of Russet Rural in Portage and Waupaca Counties. A moderate amount of foliage Blight was observed on Katahdins and a trace to moderate infection on tops of Sequoia and Sebago. Severe infection was found on foliage of the Rose variety in Portage County. Pontiacs had been dug or were being dug and no Tuber Rot was observed. Late Blight was developing so rapidly and severely in some fields that it appeared desirable to use a foliage killer to prevent tuber infection since a killing frost in this area had not appeared to date. Copper spray or dust applications for protection were advisable in many fields. Most examined green fields had Late Blight present to some degree but in a few maturing fields none was observed, possibly because the foli-

age was so mature it was difficult for the Blight organism to become established. The extent of Tuber Rot will depend much upon the weather which follows and the technique used in harvesting. A period of warm dry weather would assist greatly in cutting down the amount of Tuber Rot, whereas much moisture and driving rains would favor spore development and the carrying of the spores into the soil and to the tubers.

From a trace to considerable foliage infection by Early Blight (Alternaria solani) was found present in all examined green fields in Portage and Waupaca Counties, on Chippewa, Katahdin, Rose, Russet Rural, and to a less extent on Sebago and Sequoia. Foliage infection appears to be considerably more abundant this year as compared to last, but does not as yet seem to have caused much damage and may do some good by hastening maturity and thus reducing the possibility of Late Blight infection.

From a trace to moderate amounts of Fusarium Wilt [species not designated] were found in Chippewa, Pontiac, Russet Rural, Sebago, and Sequoia varieties in Portage and Waupaca Counties. Wilt from this source appears to be on the increase.

From a trace to severe Scab infection was observed on Chippewas being dug. A slight amount was observed in random hills of Katahdin and Sebago taken while examining fields. In general, it appears that Scab is less severe to date than it became last year; however, this is a severe Scab year.

A slight amount of Rhizoctonia Scurf was observed on Chippewa being dug in Portage County.

Blackleg was responsible for a trace or small amounts of wilting, especially in the Sequoia variety in Portage County.

Small amounts of Yellow Dwarf (Virus) were found in Pontiac, Russet Rural, and Sequoia varieties in Portage and Waupaca Counties. The Sequoia variety appeared to the most severely affected, although this variety was not encountered as often as the Russet Rural.

Spindle Tuber was most conspicuous on the Sequoia variety in Portage County, occurring in traces to slight amounts.

Mosaic (Virus) was observed in from a trace to 16% on Russet Rural in Waupaca County. Severe infection was observed on the Rose variety in Portage County and from a trace to moderate amounts in Katahdin and Sequoia in Waupaca and Portage Counties.

Hopperburn was present in from a trace to moderate amounts on all varieties examined in both Portage and Waupaca Counties. It appeared to have done little damage where spray or dust applications had been applied.

The potato stem borer was observed in from a trace to moderate amounts in all varieties but especially in Chippewa, Russet Rural, and Sebago. This insect appears to be on the increase and in some cases causes wilting and loss of a considerable number of hills. Grubs are more abundant and destructive to tubers in hills this year than last.

EMERGENCY PLANT DISEASE PREVENTION PROJECT AND UNIVERSITY OF WISCONSIN

OTHER REPORTS ON POTATO DISEASES

Reports are of Emergency Plant Disease Prevention Project surveys.

RED RIVER VALLEY OF MINNESOTA AND NORTH DAKOTA: Between September 19 and 24, potatoes were examined in the Red River Valley area from the vicinity of Moorhead, Minnesota north to Grafton, North Dakota, and Warren, Minnesota. The writer was accompanied for some of the time by R. C. Rose, extension pathologist, University of Minnesota, and by F. Gray Butcher, extension plant pathologist of the North Dakota Agricultural College.

The very heavy rains that occurred in most of the Red River Valley have caused considerable loss in the potato crop. In the Moorhead area, many fields are still waterlogged and there is little prospect of some of these fields being dug. North of Moorhead, the soil is somewhat drier and digging is progressing. In the Grand Forks area, fields were under water for 48 hours or longer following a 5-inch rain early in September. Soft Rot is common in these fields, and loss from Soft Rot following the flooding of potatoes is high. Some fields will not be dug, while in others digging is being delayed as long as possible.

Late Blight has attacked late fields severely, early plantings in most cases having escaped damage. Fields of White Rose and Chippewa appear to be most heavily infected, over 50% of the tubers in some fields being badly rotted.

Relatively little Bacterial Ringrot was seen in tubers examined at this time, but indications are that the disease was more prevalent in 1944 than in most previous years, with some fields of table stock being heavily infected.--Ian W. Tervet.

COLORADO: During the week ending September 30 a survey was made in Weld County in company with Dr. J. G. McLean, Horticulturist, and Dr. W. A. Kreutzer, Pathologist, of the Colorado Experiment Station. Late potatoes were being harvested in Weld County.

In several fields where potatoes were being dug from a trace to 2% of the tubers were showing symptoms of Leak caused by Phytophthora sp.

In many fields a high incidence of Fusarium Wilt (F. solani f. eumartii) ranging from 10 to 25% was observed. In these fields loss in grade and storage will be about the same as the amount of infection recorded in the vines.

Scab was general but causing little loss in the fields surveyed.

Rhizoctonia was general and causing a trace amount of loss.

Psyllid Yellows induced by Paratrioza cockerelli was general. In one 15-acre field visited, where no control measures had been applied during the growing season, all the plants showed severe symptoms. The crop will be a 100% loss.

No Late Blight infection has been found on the tubers to date in Weld County.

A disease which appears to more nearly fit the description given to "Purple Dwarf" (G. B. Sanford and S. B. Clay, Purple Dwarf, an undescribed potato disease in Alberta. Can. Journ. Res. Sect. C 19: 68-74. 1941) was found to be general in Weld County. This disease has also been observed in Sedgwick and Morgan Counties. Infection in many fields ranges from a trace to 2%.--E. W. Bodine.

COTTON BOLL ROTS AND THE FUNGI ASSOCIATED WITH THEM IN OKLAHOMA IN 1944

W. Winfield Ray

In connection with a project on cotton boll-rot disease investigations in Oklahoma, a part of the procedure involves the collecting of samples of rotting bolls from various areas of the State each autumn in order to determine the fungi present and their frequency of occurrence. In August and September of 1944, 29 samples were taken in 26 counties of Oklahoma. I wish to give credit to Dr. H. W. Larsh, of the Emergency Plant Disease Prevention Project, for his aid in collecting most of the samples analyzed.

The bacterial blight disease, caused by Xanthomonas malvacearum (E. F. Sm.) Dowson, was widespread and common in Oklahoma this year. Early in the growing season it was confined almost entirely to fields planted with nontreated seed. By mid-season the disease had spread and had become apparent in nearly all fields, although the incidence of the disease never became so great in fields planted with treated seed as in those planted with nontreated seed. Observations indicate that local rain storms have much to do with the spread of the disease and the frequency of its occurrence. As an example, a breeding plot of the Oklahoma Triumph variety at Perkins was subjected to 2 3-inch rains at the time bolls were setting on, and bacterial blight lesions on leaves and bolls were extremely numerous. The same variety from the same seed source at Stillwater, 10 miles away, where the 2 heavy rains did not occur, was little affected by bacterial blight.

Infection tests involving numerous fungi and Xanthomonas malvacearum have disclosed that the bacterium appears to be the only organism commonly affecting bolls in Oklahoma that is capable of direct penetration of the host tissues. All the other organisms either follow bacterial infection or gain ingress into the bolls by means of mechanical injury or insect punctures. Practically all the lesions from which isolations were made in these studies were initiated by X. malvacearum. Isolations were made from tissue removed from a portion of a lesion. The pieces were disinfested in a calcium hypochlorite solution and planted on water agar. The results of the isolation studies are summarized in Table 1.

Species of Alternaria have consistently been the most common fungi associated with boll rots in Oklahoma. Rhizopus nigricans Ehr. and Aspergillus niger v. Tiegh. may be more important and common than the data in Table 1 indicate. Both fungi, especially the former, are capable of rotting the entire boll within a period of a few days to several weeks, and since the isolations in this study were made from small lesions rather than from completely rotted bolls, the true picture of their importance as boll-rotting fungi may not be clearly evident. Fusarium moniliforme Sheld., Fusarium spp., and other fungi are much like Alternaria spp. in their habits. They are often associated with boll lesions initiated by Xanthomonas malvacearum or insect punctures, but they are distinctly weak pathogenically.

Glomerella gossypii (South.) Edg., which is so commonly associated with seedling and boll diseases in States east of Oklahoma, has been reported previously from 7 counties of Oklahoma (PDR 26: 473-474. 1942). It was

Table 1. Frequency of occurrence of fungi associated with rotted bolls collected in 26 counties of Oklahoma in 1944

Fungus	Distribution of the fungi			
	In 29 samples		In 819 tissue plants	
	Number	Percent	Number	Percent of total fungi
Alternaria spp.	29	100.0	412	67.21
Glomerella gossypii	1	3.4	2	.32
Fusarium moniliforme	15	51.7	37	6.03
Aspergillus niger	11	38.0	45	7.34
Rhizopus nigricans	5	17.2	11	1.79
Penicillium spp.	4	13.8	13	2.15
Fusarium spp.	18	62.0	59	9.62
Others	12	41.3	34	5.54

found for the first time from Le Flore County in this year's survey, thus increasing the total to 8 counties from which the fungus has been reported.

The sclerotial stage of Macrophomina phaseoli (Maubl.) Ashby was isolated once from each of 2 samples of bolls. In so far as can be determined, there is no previous record of the occurrence of this fungus on cotton bolls.

OKLAHOMA AGRICULTURAL EXPERIMENT STATION

OBSERVATIONS ON SCLEROTINIA ROOT ROT OF GUAYULE

Alvin J. Braun

A root and top rot of guayule in the nursery and in storage, caused by Sclerotinia minor Jagger and S. sclerotiorum (Lib.) Mass., has been reported by Campbell, Presley, Leach, and Snyder[1]. S. sclerotiorum has also been reported by Presley[2] to cause the death of plants shortly after transplanting in the field. In the spring of 1943 plants with root lesions caused by Sclerotinia spp. were collected in a 6-month-old field planting in the Salinas Valley, near Chualar, California. At that time, it was assumed that these plants became infected in the nursery or in storage. However, subsequent observations made during the summer indicated that infection occurred after planting.

[1]Campbell, W. A., L. D. Leach, J. T. Presley, and W. C. Snyder. Some diseases of guayule in California. U. S. Dept. Agr. Plant Disease Reporter 27: 63-66. 1943

[2]Presley, John T. Some diseases affecting cultivated guayule in the Southwest during 1942. U. S. Dept. Agr. Plant Disease Reporter 27: 94-96. 1943

Distribution and Extent of Loss. Plants killed by Sclerotinia were observed in a number of field plantings in the Salinas and Sacramento Valleys of California. Observed losses rarely exceeded 0.1% in any planting. Sclerotinia root rot caused the loss of 5% of the plants in a 20-acre planting near Eloy, Arizona.

Symptoms. The above-ground symptoms of the advanced stages of the disease are dependent upon the physiological condition of the plant. Affected plants, if in a vigorous state of growth, wilt; the leaves dry, become gray or brown, and remain on the plant for some time. Plants in a less active state of growth when affected usually do not wilt, but the leaves develop a yellowish coloration and gradually die back from the tip of the blade. The development of above-ground symptoms and the subsequent death of the plant occurs only after the lesion girdles the tap root above the majority of the branch roots.

Lesions commonly develop on the tap root from 2 to 6 inches below the soil surface. The diseasedtissue is soft, watery, frequently shredded, and does not differ materially in color from the adjacent healthy tissue. Sclerotia and tufts of white mycelium develop on the surface of the lesion and within the diseased tissue.

The Causal Organism. Isolations from the root lesions yielded pure cultures of either Sclerotinia minor or S. sclerotiorum, the former species predominating. Apothecia of both species were obtained by burying sclerotia 1/4 to 1/2 inch deep in flats of pasteurized sand. The sclerotia were produced on sterilized oats that had been inoculated with S. minor and S. sclerotiorum isolates from guayule. These flats were placed out-of-doors at Salinas in a protected area on January 17, 1944, and the surface was kept moist by frequent watering. Apothecia of S. sclerotiorum first appeared on March 8 and were still being produced in abundance on May 22, at which time the flats were discarded. Apothecia of S. minor did not appear until May 6, and only a few developed in the course of the experiment. The apothecia of S. minor were from 2 to 4 mm in diameter while those of S. sclerotiorum ranged from 5 to 10 mm.

Results of Inoculation. Guayule transplants were grown in pasteurized soil containing sclerotia of Sclerotinia minor. A second series contained sclerotia of S. sclerotiorum. The sclerotia, produced on oat cultures of the isolates from guayule, were dried by exposing to the air in the laboratory for one week. Six weeks after inoculation, 7 of the 30 plants in pots containing sclerotia of S. minor were dead. Sclerotia were produced within the lesions and S. minor was recovered by culturing from diseased tissue. After 10 weeks no new infections were noted. All 30 plants in the pots containing sclerotia of S. sclerotiorum remained healthy. The assumption was made that infection in the S. minor series resulted from vegetative mycelium which developed from the sclerotia. Stipes bearing abortive apothecia were produced by the sclerotia of S. sclerotiorum but apparently no vegetative mycelium developed.

Sclerotial Counts on Infested Soil. An indication of the amount of inoculum in the soil in the infested field near Chualar, California, was obtained by making sclerotial counts. The samples were collected on September 8, 1943. Two plots, each approximately 50 feet square, were laid out:

plot 1, in an area in which 1% of the plants were affected; and plot 2, in an area with less than 0.1% of diseased plants. Sclerotia were washed out of 40 samples of soil, each 4 inches in diameter and 6 inches deep, chosen at random in each plot. The average number of sclerotia per square foot of the upper 6 inches of soil in plot 1 was 6.6; in plot 2, 25.1. These sclerotia were assumed to have been produced on the susceptible crops preceding guayule.

The apparent discrepancy between the percentage of diseased plants and the sclerotial population may be attributed to differences in the conditions for vegetative growth from the sclerotia in the 2 plots. Since conditions for infection were apparently more favorable in plot 1, it is assumed that a greater percentage of the sclerotia initially present in this plot had already germinated. Consequently, the number of sclerotia remaining at the time the counts were made would not necessarily indicate their relative abundance before germination had occurred.

Effect of Soil Moisture. No new infections occurred during the summer of 1944 in the 2-year-old portion of the planting near Chualar which had a 0.1% loss in 1943. This planting was not irrigated during the 1944 season; whereas, during the summer of 1943 the planting received irrigations at regular intervals. In an adjacent 1-year-old planting, on soil also known to be infested with both species of Sclerotinia, several plants developed root lesions. This more recent planting received several irrigations during the 1944 season.

GUAYULE RESEARCH PROJECT. SALINAS, CALIFORNIA

FUNGI ISOLATED FROM DISEASED GUAYULE

John T. Presley and Lois Weston

The fungi herein reported were obtained from guayule (Parthenium argentatum Gray) during the course of disease investigations from April 1942 to February 1944. The diseased material from which isolations were made came from the nurseries in California, from crated plants in storage, and from field plantings in California, Arizona, New Mexico, and Texas.

Fungi Pathogenic to Guayule

Botrytis cinerea Pers. was isolated mainly from diseased nursery seedlings at Salinas during periods of cool, foggy weather in late summer. It was also obtained from nursery stock held in cold storage and from a dieback of nursery plants that had been topped during the winter and left in the nursery beds.

Phymatotrichum omnivorum (Shear) Dugg. was isolated from field plantings of guayule in Arizona, New Mexico, and Texas.

Phytophthora drechsleri Tucker was isolated from diseased plants from California, Arizona, New Mexico, and Texas.

Pythium sp. was commonly associated with a root rot of small seedlings and a root and crown rot of older plants in the Salinas and Oceanside nurseries, California.

Rhizoctonia sp. was isolated from small seedlings and from older nursery and field plants.

Sclerotinia minor Jagger and S. sclerotiorum (Lib.) Mass. were obtained from both nursery and field plants, usually during periods of cool weather when excessive moisture was supplied by rains or irrigation. These fungi were also isolated from plants held in cold storage.

Sclerotium rolfsii Sacc. was isolated from a field planting in Arizona.

Verticillium albo-atrum Reinke & Berth. has been recovered from nursery and field plants in California, Arizona, New Mexico, and Texas.

Saprophytes or Fungi of Questionable Pathogenicity

Acrostalagmus
Alternaria
Aspergillus nidulans (Eidam) Winter
Basisporium
Cephalosporium
Chaetomella
Chaetomium elatum Kunze & Schmidt
Choanephora cucurbitarum (Berk. & Rav.)Thaxter
Cladosporium
Cunninghamella elegans Lendner
Cylindrocarpon
Diplodia
Fusarium spp.
Helminthosporium
Hormodendrum
Macrosporium
Melanospora
Microdiplodia
Mucor corticolus Hagem
Naemosphaera
Penicillium spp.
Phoma
Pleospora
Pyrenochaeta
Pyrenophora
Rosellinia
Sclerotium bataticola Taub.
Sphaeronaema
Stemphylium
Stilbella
Stysanus
Tetracoccosporium
Trichoderma
Volutella
Ypsilonia

GUAYULE RESEARCH PROJECT, SALINAS, CALIFORNIA

ALFALFA SEED PRODUCTION IN NORTHERN MINNESOTA

Ian W. Tervet

During the first week in September, inspection was made of alfalfa and clover fields in northern Minnesota, in an endeavor to determine the factors responsible for the poor seed yield in these legumes (see PDR, Sept. 7, p. 885). The extremely wet weather early in September had made all ungraveled roads impassable, hence limiting the survey to certain areas. From September 26 to 29 a second inspection of alfalfa was made, principally in the Baudette region of Lake of the Woods County, the writer being accompanied by R. F. Radway, county agent at Baudette.

Almost all alfalfa for seed production has been cut, but some fields have not been threshed because of continued unfavorable weather. Sprouted and discolored seeds occur commonly in many of the seed lots. Yields in general are poor although certain fields have given yields of over 150 pounds to the acre. These are the exceptions, the majority of the fields yielding in the neighborhood of 50 pounds to the acre.

Disease is not primarily responsible for the low yields although diseases unquestionably contribute to the poverty in seed production. For instance, Bacterial Wilt now occurs in this area. In the earlier report,

it was stated that a blight had destroyed many plants in one field. Isolations indicated that Phytomonas insidiosa [Corynebacterium insidiosum] was responsible. While Bacterial Wilt is common in southern and central Minnesota, this disease had hitherto not been found north of St. Cloud in central Minnesota.

There are many possible causes for the decline in alfalfa seed production. Many farmers report that seed production is excellent during the first 2 or 3 years after the establishment of a stand, but thereafter falls off rapidly. Thus it is not uncommon for alfalfa stands to be left for a period of about 5 years and then plowed. Other farmers, however, have obtained consistently good seed yields during the last 15 years even on old alfalfa stands. Two of the best yielding fields in the Baudette territory were seeded 10 years ago.

The practice of burning over alfalfa fields in early spring to aid in the control of the insects responsible for the blighting of the flowers does not consistently result in good seed yields, and indeed has failed to maintain production in those areas where seed set diminishes in stands over 3 years old. Good seed production has been obtained in old stands where burning has not been consistently practiced.

It seems not unlikely that seed production in alfalfa is associated with some soil factors and that corrective fertilizing will help in promoting better seed yields.

EMERGENCY PLANT DISEASE PREVENTION PROJECT

DISEASES OF PEANUTS IN SOUTH CAROLINA

Alton E. Prince

During the sweetpotato disease survey in the Piedmont area, August 28 to September 9, peanuts were very frequently found growing in areas adjacent to sweetpotatoes. Cercospora Leaf Spot was looked for but in only one case was it observed to be causing enough damage to be important. This was in Greenwood County near Callison, where every plant was infected and many plants had been nearly killed. Southern Blight (Sclerotium rolfsii) was killing 28 out of 100 counted hills in a half-acre patch near Adamsburg, Union County. It is unusual for peanuts to be relatively free from disease symptoms.

During the week of September 18, special attention was given to a survey of peanut diseases in the commercial growing areas in South Carolina. The main object was to determine whether or not the Cercospora Leaf Spot disease was severe enough to warrant control measures similar to those being carried out in the 2 adjacent States of North Carolina and Georgia. This is important, because many farmers have started growing peanuts as a possible new crop for wartime markets.

Most of the peanuts grown are of the Spanish Bunch type and are produced in Aiken and adjacent counties in the west-central part of the State. In this area 15 fields totaling 141 acres were examined carefully.

It can be stated that Leaf Spot is not serious enough to warrant initiating a general control program but some fields were found where, if dust had been applied, a considerable increase in yield would certainly have resulted. The amount of defoliation, which is considered a measure

of damage done, varied from none to at least half. One 10-acre field of Spanish Bunch peanuts in Aiken County had lost at least half of the leaves. The amount of defoliation was determined by measuring with a yardstick the height of the plants and the extent of defoliation. This method was suggested by Mr. H. R. Garriss, Extension Pathologist at Raleigh, North Carolina. A similar condition was found in a second 9-acre field, evidently neglected since grasses and weeds were rampant. It was observed that where weeds were allowed to "take over" the fields Leaf Spot was more severe, while the cleaner fields had a smaller Leaf Spot damage.

In addition to the Aiken County area, observations were made in Clarendon, Florence, Laurens, and Dillon Counties. At Latta in Dillon County, Mr. S. M. Epps, the county agent, had the only demonstration of sulfur dusting in the State, according to Mr. W. C. Nettles, Extension Entomologist and Pathologist in South Carolina. In this field of about 3 acres, of Virginia Bunch peanuts, infection by the Leaf Spot fungus was severe, but, except in spots that seemed to have been missed, most of the leaves remained on the plants. Plants in the missed spots were almost leafless. It seems safe to conclude that if dust had not been applied the whole field would have been in a similar condition.

Sclerotium rolfsii, the Southern Blight fungus, is second in importance of the fungi that cause losses in peanuts. It was present in almost every field visited, and in 4 fields it seemed to be doing enough damage to warrant special attention. In the first field of 10 acres, about 1/3 seemed to have been planted later than the rest, and here many dead and dying plants were observed. A superficial examination showed that the lesser corn borer (determination checked by Mr. J. A. Berly of the South Carolina Crop Pest Commission) was at least contributing to the death of some of the plants. A representative area in the affected part of the field was selected and a 50-foot square paced off. The dead plants in this square were counted and examined for the corn borer and for S. rolfsii. In this square, where the stand was poor and the plants small, 109 dead or dying plants were counted, all with corn borer chambers and frequently with the larva present. Of these 109 plants, only 20 showed signs of Sclerotium rolfsii.

A second, similar, plot was measured off in the part of the field where stand was good and the plants large and healthy. Here, 12 plants were dead or dying, each with the chambers or larvae of the lesser corn borer, and of these only 1 had signs of S. rolfsii. According to Mr. Berly, this insect is not uncommon throughout the State, and in some areas does considerable damage. Leaf Spot was not abundant enough in this field to cause appreciable defoliation.

In a second field of about 10 acres, planted to Spanish Bunch peanuts, in Barnwell County, another estimate of corn borer and S. rolfsii damage was made. In a 50-foot square 48 dead or dying plants were counted, all with corn borer larvae or chambers, and of these 21 showed signs of the Southern Blight organism. Leaf Spot was not prevalent enough to cause defoliation.

In a third small field of about a half acre in Valencia peanuts, located in Laurens County, peanuts had been planted where sweetpotatoes had been last year. The stand was very poor and 1 out of every 6 plants remaining showed dead or dying branches with signs of S. rolfsii infection. No borer damage was found. When infected plants were pulled most of the

peanuts stayed attached but many were "pops" with blackened shells and frequently with the mycelial weft and sclerotia of the fungus present. A fourth field of about 2 acres in the same county contained about 1 plant out of 10 infected with S. rolfsii. There was little Leaf Spot and no corn borer damage in either of these 2 fields.

In one 4-acre field in Aiken County where many of the plants had died, a check showed that black lesions were common along the stems and minute brown lesions present on the fruit, but neither Sclerotium rolfsii nor corn borers could be found. Similar symptoms were found in another field in Orangeburg County. According to Dr. Lindsay S. Olive, mycologist of the Emergency Plant Disease Prevention Project, the stem and leaf lesions on specimens sent to him from the Aiken County field were the result of infection by Cercospora arachidicola, the causal agent of the Leaf Spot disease. It is interesting to note that Leaf Spot was not severe enough in either field to cause excessive defoliation even late in the season.

EMERGENCY PLANT DISEASE PREVENTION PROJECT

DISEASES OF SOYBEANS IN WISCONSIN

Edwin E. Honey, J. G. Dickson, and F. R. Jones

The following notes represent observations, based on field symptoms, made during 2 brief trips devoted especially to soybean diseases.

On August 29, soybean fields were examined in southern Wisconsin, in Dane, Green, Rock, Walworth, and Jefferson Counties, totalling 12 fields with 167 acres. The results of this survey are given in the Table.

What appeared to be Bacterial Blight (Pseudomonas glycinea), according to field symptoms, was observed as a trace in 9 of the fields examined. Some doubt has been felt regarding the possible confusion of Bacterial Blight with the Bacterial Pustule disease under Wisconsin conditions.

Downy Mildew (Peronospora manshurica) was observed in 8 of the fields examined in amounts from a trace in a few spots to a slight amount scattered generally in the fields. Only very slight or no damage appeared to have resulted. Downy Mildew appears to be much less abundant or severe this year than last.

A trace of Root Rot of undetermined cause was noted in only one field, in Dane County. Bud Blight (Tobacco Ringspot Virus) was observed in 3 fields in amounts ranging from a trace to 2 or 3%. Mosaic (Virus) was found in 2 fields. Slight to severe Drought damage was observed in fields in Green and Rock Counties.

Slightly more than 2 weeks later, from September 14 to 16, an inspection of soybean fields was made in Dane and Columbia Counties in southern Wisconsin, and in Winnebago, Portage, Taylor, Marathon, and Wood Counties in the central part of the State, in 14 fields totalling 77 acres. The results of this inspection also are given in the Table.

Bacterial Blight was observed as a trace in spots or generally scattered in 8 of the fields. It had not increased markedly since the earlier inspection.

Downy Mildew was noted in 6 fields; the number of fields affected had not increased but the amount of infection where the disease was present

Table 1. Diseases observed in Soybean fields examined in Wisconsin.

County	Number of acres	Amount of disease observed: Bacterial Blight	Downy Mildew	Bud Blight	Mosaic	Remarks
Diseases observed in 5 southern counties, August 29, in 12 fields						
Dane	2	Trace		1%		A trace of an undet. Root Rot; considerable varietal mixture
Rock	10		General[a]			Poor stand
Green	30		General			
Green	25	Trace	Trace			Some drought damage
Rock	10	Trace	Trace	Trace		
Rock	30	Trace	General	2-3%		
Rock	1	Trace	Trace			
Walworth	30	Trace	General		Trace	
Walworth	--	Trace				
Jefferson	12	Trace				
Jefferson	16		Trace		Trace	
Jefferson	1	Trace				
Total acres	167					
Diseases observed in 7 southern and central counties, Sept. 14-16, in 14 fields						
Dane	2	Trace	Slight; general			Pods poorly filled
Columbia	10	Slight; general	Trace	Trace		Trace of Brown Spot
Columbia	20					Poor stand
Winnebago	5	Slight; general				Mites abundant
Winnebago	5	Slight; general				Some marginal leaf yellowing
Winnebago	5		Slight; general		Trace	
Winnebago	1	Slight; general		Trace	Trace	
Winnebago	5					Matured by drought
Winnebago	10	Slight in patches				
Portage	3				Trace	Poor stand
Taylor	5	Trace	General			Cold injury to few leaves
Marathon	2		General			Some marginal leaf yellowing
Marathon	1		General			
Wood	3	Trace, in patches				
Total acres	77					

[a] In cases where the term "General" is used Downy Mildew infection was only starting or in early stages of leaf spotting, but generally scattered throughout the field

was slightly greater than approximately 2 weeks earlier.

Brown Spot (Septoria glycines) was observed in one commercial planting in Columbia County.

Bud Blight and Mosaic were observed in traces in 2 and 3 of the fields examined, respectively.

EMERGENCY PLANT DISEASE PREVENTION PROJECT AND UNIVERSITY OF WISCONSIN

APPLE DISEASES IN PENNSYLVANIA

Apple Diseases in Adams County

With Dr. F. H. Lewis of Pennsylvania State College Fruit Research Laboratory at Arendtsville, Dr. W. D. Mills of the Department of Plant Pathology, Cornell University, Ithaca, New York, and Dr. R. S. Kirby, Extension Plant Pathologist of Pennsylvania State College, a survey trip was made on September 21 to 23 through the apple-growing region of southeastern and southcentral Pennsylvania, with particular emphasis being placed on the intensive fruit area in Adams County.

Approximately 15000 acres of apples, 2400 acres of peaches, and 1500 acres of sour cherries are grown in Adams County, with the most intensive area located north of Arendtsville and Biglerville. York Imperial, Stayman, Rome Beauty, and Jonathan are the principal apple varieties grown. The codling moth is the major fruit trouble, and this year the insect has been very serious. In one orchard where 7 cover sprays had been applied, the larvae had invaded about 75% of the fruit. The most important phytopathological trouble this year is the Apple Rust. Very significant reductions in the amount of fruit and leaf infection have been obtained where recommended spray applications of Fermate were properly used.

In Adams County, all major fruit varieties except Stayman have shown moderate to severe leaf infection by Apple Rust (Gymnosporangium juniperi-virginianae). In 7 orchards of York Imperial and Rome Beauty surveyed, 10 to 70% of the leaves showed lesions. As is usually the case, there were more lesions on the leaves of terminals than spurs. Fruit infection on York Imperial occurred in amounts varying between a trace and 12% and on Rome Beauty between 10 and 40%. All of the rust figures cited here are for orchards in which Fermate sprays were not used to control the rust.

The Quince Rust (Gymnosporangium clavipes) was present in all the orchards surveyed in amounts varying from a trace to 3% of the fruit infected.

In general, little Scab (Venturia inaequalis) was observed either on the leaves or on the fruit. In one orchard of York Imperial, 2 to 3% of the fruit bore Scab lesions. In the others, Scab was either not observed or was present only as a trace.

In one orchard of young York Imperial trees, Dr. Lewis had found trees showing typical symptoms of dieback and rosette caused by Boron Deficiency. Very little fruit was present but several apples showed late-season internal cork. Internal cork was present also in 2 Rome Beauty orchards and one Cortland orchard. The owner of the Cortland orchard stated that this trouble was present in one block of trees on his farm a few years ago, and that he had obtained control by an application of borax on the soil.--John S. Niederhauser, Emergency Plant Disease Prevention Project.

Apple Diseases in Berks, Lancaster, and York Counties

Fruit lesions of Apple Rust are very few this year, with less than 0.5% observed where counts were made. Leaf spotting is common, but in general

is only slight to moderate in severity.

Although the dry season has kept apple Scab down to a "below average" figure, the disease is more general and more serious than in 1943. As a rule, spraying kept the fungus well in check. In unsprayed orchards of Rome Beauty, Stayman, and Smokehouse, Scab counts on fruit ran between 70 and 75%. In one case where no spray had been applied until petal-fall, 75% of the fruit showed Scab spots.

Though in one unsprayed orchard 60% of the fruit showed Brooks' Spot (Mycosphaerella pomi), the total damage done by this fungus in these counties is slight.--R. S. Kirby, Pennsylvania State College.

FRUIT DISEASES IN WESTERN ILLINOIS

J. S. Tidd and G. H. Boewe

During the week ending September 30 a survey was made of apple, pear, and peach orchards in southwestern and west-central Illinois. When rain curtailed field operations, packing houses were visited and ungraded apples were inspected for rot and scab.

Jonathan, Grimes Golden, Golden and Red Delicious, and King David varieties of apples were, for the most part, harvested and packed. Size had been reduced somewhat on the early fall varieties probably owing to drought conditions in the summer. This, coupled with worm injury and scab in Calhoun County was reducing the grade of the packed fruit. In one orchard in Pike County, the owner had good control of apple scab except where a breakdown in equipment had prevented an application of dust at the proper time and resulted in a severe initial scab infection on Red Delicious. Spray burn (lead arsenate) was severe in many orchards.

In general, the best fruit and tree conditions occurred in Adams and Brown Counties, or the northern part of the area surveyed. To the south, in Montgomery, Macoupin, and Calhoun Counties, an opportunity was afforded to examine peach and pear as well as apple for bacterial and fungous diseases.

Blotch (Phyllosticta solitaria) and quince rust were not observed. Apple rust was found on leaves in one orchard where both prevalence and intensity were very light. Jonathan spot (non-parasitic) was observed on 3.2% of the unpicked fruit in the only Jonathan orchard inspected. A diligent search for bitter rot (Glomerella cingulata) in an orchard in Calhoun County where this disease was present the last 2 years failed to reveal even a trace.

Results of the survey are summarized in the Table below. Except as indicated in footnotes, severity of infection was determined by examination of 500 leaves, fruit, or twigs (as the case might be), from 5 to 10 different trees. The Illinois State Natural History Survey has a standard with which diseased leaves may be compared so that the percentage of diseased leaf area may be obtained.

Fruit Diseases Observed in Western Illinois, September 26 to 29.

County	Size of orchard (No. of trees)	Variety	Disease prevalence--Trees diseased %	Disease severity: Leaf area diseased %	Fruit diseased %	Twigs and fruit spurs diseased %
APPLE						
Scab (Venturia inaequalis)						
Adams	60	Jonathan	40	0	0.6	
	1000	Golden Delicious[a]		0	0	
Brown	350	Golden Delicous	0	(examined 1000 fruit and leave		
Pike	150	Red Delicious[b]	100		49.6	
	500	Red Delicious	100		9.4	
Calhoun	100	Willow Twig	100	1.25	41.8	
	950	Willow Twig	100	0.51	18.0	
Frog-Eye, Black Rot (Physalospora obtusa)						
Adams	60	Jonathan	100	0.01	0.8	
	1000	Golden Delicious[a]			0.2	
Brown	350	Golden Delicious	100	Trace	Trace	
Pike	150	Red Delicious[a]			2.0	
Calhoun	950	Willow Twig	100	Trace	15.0	
Fireblight (Erwinia amylovora)						
Adams	60	Jonathan	70			Trace
Brown	350	Golden Delicious	0			
Calhoun	100	Willow Twig	10			Trace
	950	Willow Twig	10			Trace
PEAR						
Fireblight (Erwinia amylovora)						
Montgomery	200	Douglas	100			Trace
	350	Kieffer	100			5.3
Sooty Blotch (Gloeodes pomigena)						
Montgomery	200	Douglas	100		75.0	
Macoupin	2000	Kieffer	100		54.0	
Septoria Leaf Spot (Mycosphaerella sentina)						
Macoupin	2000	Kieffer	100	Trace on 9.6% of leaves		
Montgomery	350	Kieffer	100	Trace		
Leaf Blight (Fabraea maculata)						
Macoupin	2000	Kieffer	100	61.6% of leaves infected	12.5	
Montgomery	350	Kieffer	100	Less than 1%		L
PEACH						
Scab (Cladosporium carpophilum)						
Montgomery	1600	Elberta & J. H. Hale	100	55% of leaves with approximately 25% of leaf area infected		
Brown	300	Elberta	100	4.8% of leaves with approximately 1% of area infected		

County	Size of orchard (No. of trees)	Variety	Disease prevalence--Trees diseased %	Disease severity: Leaf area diseased %	Fruit diseased %	Twigs and fruit spurs diseased %
PEACH conc. Shot-Hole (*Xanthomonas pruni*)						
Montgomery	1600	Elberta & J. H. Hale	0			No fruit on trees
Calhoun	500	Elberta	100	1.23		No fruit on trees
Brown	300	Elberta	80	0.09		No fruit on trees

[a] Examined 1000 fruits and as many leaves as could be found in crates at shed.

[b] Estimated prevalence and examined picked ungraded apples at packing shed.

EMERGENCY PLANT DISEASE PREVENTION PROJECT AND ILLINOIS STATE NATURAL HISTORY SURVEY

VIRUS SYMPTOMS ON MONTMORENCY CHERRY IN A BAD FUNGOUS LEAF SPOT YEAR

E. M. Hildebrand

A few orchards in the 4 main cherry-growing counties of western New York have been mapped and studied for virus diseases several times annually for the past few years. Owing to extremely unfavorable weather for spray applications early in the season, a severe outbreak of the leaf spot disease caused by *Coccomyces hiemalis* occurred in 1943.

Since the ideal time for checking on the ring-spot virosis was early in the season just as the first leaves had opened or were unfolding (May 28), the fungous disease did not interfere with making these records.

By the time for mapping for cherry virus-yellows (June 30), fungous leaf drop epiphytotics of varying severity occurred in some of the orchards under study. On careful examination it was noted that the cherry virus-yellows symptoms were almost as severe in the orchards where control of the leaf spot fungus was successful as in the previous season, when virus-yellows was severe. On the other hand, on trees in orchards suffering from fungous "leaf spot yellows" very few leaves typical of cherry-yellows virosis were seen. This observation suggests the importance of controlling the leaf-spot fungus in all investigations on cherry viruses, not only in orchards but also in the nurseries, because failure in this regard obscures the status of cherry virus-yellows.

In one orchard where "green-ring" yellows (green-ring mottle)[1], a possible relative of cherry-yellows, had been under observation since 1940, a total of 8 affected trees were observed in 1943. The fungous leaf spot, for some unknown reason, was much less marked on these trees. Most of the leaves with the typical green-ring symptoms were free from fungous spots, whereas fungous lesions were abundant on leaves of trees affected

[1] Rasmussen, E. J. Green ring mottle. (p. 61). In Hildebrand, E. M., G. H. Berkeley, and D. Cation. Handbook of virus diseases of stone fruits in North America. Michigan Agr. Exp. Stat. Misc. Publ. May 1942.

with cherry virus-yellows. Ordinarily, green-ring trees have smaller leaves than those with yellows, which might be due to their earlier maturity, as a result of which they escape infection. What significance this observation may have on the identity of the diseases in question is uncertain, but the fact is worthy of mention.

A tree with rosette virus symptoms was severely affected with fungous leaf spot at the end of June, whereas when observations were being made for ringspot virus symptoms in late May, bloom on this tree was retarded nearly a week which set it apart from the rest.

In conclusion, it can be stated that cherry virus-yellows and rosette symptoms were obscured by defoliation from fungous "leaf spot yellows", which was not the case for "green-ring", at least when these observations were made (June 30) or later in the season.

BRIEF NOTES AND SOME CORRECTIONS

HURRICANE CROP DAMAGE IN MASSACHUSETTS: According to Mr. J. W. Dayton, extension service county agent leader of Massachusetts State College, the heaviest crop losses suffered by Massachusetts farmers in the recent hurricane (September 14) were damage to apples, silage corn, and forest trees, in that order. At least one million bushels of apples became "drops" as a result of the "big blow." Estimates were received that from 20 to 90%, according to area, of the unharvested crop was on the ground after the storm. Between 25 and 35% of the total crop had previously been harvested.

About half of the silage corn had been cut before the storm, and at least 3/4 will have to be cut by hand. Forest trees in the white pine belt in southern Plymouth and Bristol Counties were badly damaged, but much of the damaged wood can be salvaged if labor can be obtained to work it up.--Robert C. Cassell, Emergency Plant Disease Prevention Project.

SOME CORRECTIONS: Loss from Mummy Disease of Blueberry in Indiana -- J. S. Tidd writes that the crop loss in the report on page 843 of the August 22 issue (no. 26), was incorrectly cited as 5%, instead of 50% as it should have been.

Witches' Broom of Alfalfa in Washington -- On page 752 of the August 1 issue (no. 23), the last sentence in Lytton W. Boyle's report at the top of the page should read "The disease was prevalent along the Methow River

Coryneum on Peach in Mississippi -- The last part of the report by Douglas C. Bain in the August 22 issue (pp. 841-842) should read "identified . . . as the Coryneum . . . stage of Ascospora beijerinckii", not Ascocarpa beijerinckii, as given.